

**AMENDMENT**

**In the Claims:**

This listing of claims will replace all previous versions and listings of claims in the application.

**1. (Canceled)**

**2. (Currently Amended)**

A method for increasing atmospheric oxygen concentration within an occupant cabin of an aircraft, said method comprising:

separating oxygen from ambient air onboard an aircraft thereby establishing a high-concentration oxygen supply;

dispensing oxygen from the high-concentration oxygen supply to an occupant cabin of the aircraft to increase a partial pressure of oxygen at a current internal cabin pressure; and

directing oxygen from the high-concentration oxygen supply overboard if a lower atmospheric oxygen concentration is ~~required~~ desired.

**3. (Currently Amended)**

A method for increasing nitrogen concentration within regions of an aircraft, said method comprising:

separating nitrogen from ambient air onboard an aircraft thereby establishing a high-concentration nitrogen supply;

dispensing nitrogen from the high-concentration nitrogen supply to a fire-susceptible, internal non-habitable region ~~outside a fuel tank~~ of the aircraft thereby decreasing the capability for the atmosphere to support combustion;

detecting an oxygen concentration in a habitable region of the aircraft;

determining that a reduced oxygen concentration is ~~required~~ desired in the habitable region of the aircraft, and

adding nitrogen from the high-concentration nitrogen supply into the habitable region to dilute the oxygen concentration if the reduced oxygen concentration is ~~required~~ desired.

**4. (Currently Amended)**

A method for monitoring partial pressure of oxygen in an occupant cabin of an aircraft and in fire-susceptible, non-habitable areas of the aircraft, said method comprising:

establishing a high-concentration oxygen supply;

continuously detecting an absolute pressure and an oxygen percentage in the occupant cabin and the fire-susceptible, non-habitable areas of the aircraft; ~~[[,]]~~

computing a partial pressure of oxygen within the occupant cabin and the fire-susceptible, non-habitable areas of the aircraft based upon the absolute pressure and the oxygen percentage; and

reporting the partial pressure of oxygen to a central control system; and

dispensing oxygen from the high-concentration oxygen supply under a control of the central control system into the occupant cabin based, at least in part, on the partial pressure of oxygen.

**5. (Currently Amended)**

A method for controlling a degree of oxygen/nitrogen shift of incoming air in response to a partial pressure of oxygen in areas of an aircraft, said method comprising:

dispensing an oxygen flow from a high-concentration oxygen supply to an occupant cabin of the aircraft to increase the level of oxygen concentration within the cabin;

dispensing a nitrogen flow from a high-concentration nitrogen supply to a fire-susceptible, internal non-habitable region ~~outside a fuel tank~~ of the aircraft to decrease the capability for the atmosphere therein to support combustion;

varying the oxygen flow and the nitrogen flow into the occupant cabin based in part on a detected condition in the aircraft.

**6. (Currently Amended)**

A method for controlling an atmosphere in occupied and unoccupied areas of an aircraft, said method comprising:

establishing a supply of nitrogen rich air by separating nitrogen from ~~ambient~~ air onboard the aircraft;

storing the supply of nitrogen rich air in an unoccupied area; and

introducing the nitrogen rich air stored in the unoccupied area into ~~an occupied a~~ habitable area.

**7. (Currently Amended)**

A method for lowering a partial pressure of oxygen below a natural, at altitude level in response to fire in a habitable area of an aircraft, said method comprising:

establishing a supply of nitrogen rich air by separating nitrogen from ambient air onboard the aircraft;

establishing a supply of oxygen rich air by separating oxygen from ambient air onboard the aircraft; and

introducing the nitrogen rich air stored in the non-habitable area of the aircraft into the habitable area, in conjunction with directing the oxygen rich air overboard, if a fire is detected onboard the aircraft.

**8. (Currently Amended)**

~~The method of claim 10, A method for adjusting nitrogen and oxygen concentrations within regions of an aircraft, said method further comprising [[:]]~~

~~separating nitrogen from ambient air onboard the aircraft thereby establishing a high-concentration nitrogen supply in a first location; and~~

~~storing the dispensing high-concentration nitrogen supply in a from the first location prior to dispensing the high-concentration nitrogen from the high-concentration nitrogen supply. to a fire-susceptible, non-habitable internal region separate from a fuel tank, thereby decreasing a capability for an atmosphere of the fire-susceptible, non-habitable internal region to support combustion by reducing a partial pressure of oxygen within the atmosphere.~~

**9. (Currently Amended)**

~~The A method for adjusting an oxygen concentration within a region of an aircraft, of claim 8, further comprising:~~

~~separating oxygen from ambient air onboard the aircraft thereby establishing to establish a high-concentration oxygen supply; and~~

~~dispensing high-concentration oxygen from the high-concentration oxygen supply to an occupant cabin of the aircraft thereby increasing to increase a level of oxygen concentration within the occupant cabin to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure.~~

**10. (Currently Amended)**

The method of claim 9, further comprising:

~~separating nitrogen from ambient air to establish a high-concentration nitrogen supply; and~~

~~determining that reduced oxygen concentration is required desired in the occupant cabin; and responsively initiating a mixing of dispensing the reserved high-concentration nitrogen from the high-concentration nitrogen supply to, thereby diluting dilute the oxygen concentration in the occupant cabin.~~

**11. (Currently Amended)**

The method of claim 3, ~~where~~ wherein the fire-susceptible, internal non-habitable region ~~outside the fuel tank~~ comprises at least one of: a cabling duct, a baggage compartment, a radio rack compartment, and an electrical wiring compartment.

**12. (Canceled)**

**13. (Canceled)**

**14. (Canceled)**

15. (Canceled)

16. (Canceled)

17. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is a cabling duct.

18. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is a baggage compartment.

19. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is a radio rack compartment.

20. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is an electrical wiring compartment.

21. (Previously Presented)

The method of claim 5, wherein the detected condition is at least one of a partial pressure of oxygen values, flight parameters, aircraft configuration, and smoke/fire warning status.

22. (Currently Amended)

The method of claim 6, wherein the ~~occupied~~ habitable area comprises at least one of: a passenger cabin, a cockpit, a lavatory, a galley, and a vestibule.

**23. (Previously Presented)**

The method of claim 6, wherein the unoccupied area comprises at least one of: a cabling duct, a baggage compartment, a radio rack compartment, and an electrical wiring compartment.

**24. (Currently Amended)**

A system for adjusting a nitrogen concentration and an oxygen concentration within regions of an aircraft, the system comprising:

a gas separation unit to separate ambient air ~~from a habitable area~~ into a nitrogen rich flow and an oxygen rich flow;

a plurality of sensors monitoring at least one condition within at least one region of an aircraft; and

a central control unit controlling a dispensation of the nitrogen rich flow and the oxygen rich flow based in part on an output of the plurality of sensors to increase a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure.

**25. (Currently Amended)**

The system of claim 24, wherein the central control unit causes the dispensation of the nitrogen rich flow into the habitable area if a reduced oxygen concentration in the habitable area is ~~required~~ desired.

**26. (Currently Amended)**

The system of claim 24, wherein the central control unit causes the dispensation of the oxygen rich flow into the habitable area if a higher oxygen concentration in the habitable area is ~~required~~ desired.

**27. (Currently Amended)**

The system of claim 24, wherein the central control unit causes the dispensation of a portion of the oxygen rich flow overboard if a reduced oxygen concentration in the habitable area is ~~required~~desired.

**28. (Previously Presented)**

The system of claim 24, wherein the habitable area comprises at least one of a passenger cabin, a cockpit, a lavatory, a galley, and a vestibule.

**29. (New)**

The method of claim 8, wherein the first location is a reservoir.

**30. (New)**

The method of claim 8, wherein the first location is a fire-susceptible, non-habitable region of the aircraft.